Space Weather Forecast

Issued on Tuesday 11 February 2025 at 12:56 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate flares likely. Chance of Minor Geomagnetic storms (G1), most likely days 2-3 (12-13 Feb).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one isolated Moderate class flare observed, peaking at 11/0535 UTC. This was from what has been the most active region on the disc, but has now rotated over the northwest limb. There are seven sunspot regions currently on the visible disc, however these are generally small and simple. The larger region in the southeast, is perhaps the most notable, however this appears to be a mature region dominated by its large leader, with only limited complexity or activity.

No Earth directed Coronal Mass Ejections (CMEs) were observed from available imagery.

Solar Wind / Geomagnetic Activity: The ongoing influence of the fast wind from a coronal hole was observed. Solar wind speeds persisted at elevated, between 500-600km/s. Interplanetary Magnetic Field strength was weak with the north-south component also weak but mainly negative (southwards-directed) with only brief positive intervals. Geomagnetic activity was Unsettled to Active (Kp3-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background throughout with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to Low activity expected with a chance of further Moderate class flares on day 1 (11 Feb). Lower chance of M-class flares days 2-4 (Feb 12-14) with the recently active sunspot having moved onto the far-side.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Ongoing fast solar winds are expected day 1 (11 Feb), then easing a little, before transitioning into a further and more prolonged period of fast winds day 2-3 (12-13 Feb). Unsettled to Active geomagnetic activity is forecast with a chance of G1 Minor Storms, most likely with this transition into the second more prolonged period of fast winds.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background throughout with no Solar Radiation Storms occurring.

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	50	50	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	40	40	50
Very Active	R3-R5 (X Class)	No	5	1	1	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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